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## ARTICLE I.

### THOUGHTS ON THE MOST EFFECTIVE CONDITION OF THE BRAIN AS THE ORGAN OF THE MIND, AND ON THE MODES OF ATTAINING IT.

BY CHARLES CALDWELL, M. D.

That in our present state of being, compounded as we are of soul and body, the brain is the organ or instrument of the mind, in the manifestation of all its faculties, and the performance of all its functions; and that, without that instrument, the mind is powerless, is admitted now by all enlightened and unprejudiced enquirers as a fundamental proposition in mental philosophy. Nor can a reasonable doubt be entertained, that the size, form, and organic condition of the brain make up, as an aggregate, the true and only source of mental activity, strength, and general efficiency; and the reverse. If a condition of the brain of great excellence be favourable to profound and powerful mental action, a condition defective in excellence must be unfavourable to it.

This proposition rests on the postulate, that, as abstract substances and independent entities, all human minds are alike—the mind of a Newton, or a Napoleon, having no superiority over that of an idiot. And such postulate, though not demonstrable, is in the highest degree probable. While bigots and fanatics, with the timid and the illiberal, will probably reject and perhaps denounce it as immoral and heretical, they cannot oppose to it aught that deserves the name of argument. On the contrary, every fact and substantial consideration that in any manner bear on it, are arguments in its favour. The truth of this will presently appear, sustained by evidence, which its opponents will be unable to meet and invalidate.

In a special manner it will be made to appear, that, when examined on the ground and principles of the doctrine herein embraced, mental phenomena of every description are much more intelligible than on

those of any other doctrine. Indeed, on no other supposition than that of the *equality* of human minds, as separate and independent existences, can the phenomena referred to be made intelligible at all. To illustrate this by a familiar example:

Does a severe injury of the brain reduce to a similar state of inaction or debility the minds of the most powerful and the feeblest thinkers—of the most enlightened and the most ignorant—of manhood and childhood—of the philosopher and the idiot? It does. In each it deranges, suspends, or entirely extinguishes the powers of intellect. And the reason is obvious. Considered in the abstract, the minds of these several classes of individuals are alike, and act only through the brain. When the brain, therefore, is paralysed, and rendered unfit for its functions, they do not act at all. Assuredly they give no manifestation of action. Nor is there aught heretical in this belief; else was one of the most illustrious of the hierarchy of England a rank heretic. The following is an extract from the writings of Jeremy Taylor, whose influence and authority in the church, whether for power and splendour of mind, orthodoxy of belief, or sanctity of deportment, are unsurpassed.

"If a man be exalted by reason of any excellence in his soul, he may please to remember, that *all souls are equal;* and their differing operations are because their *instrument* is in better tune, and their body is more healthful, or better tempered; which is no more praise to him, than it is that he was born in Italy."

To talk, as some do, of the different "structure" of different human souls or minds, is to use words without being able to attach to them a shadow of meaning. As well may they allege a difference of "structure" in different *thoughts.* Sensible men should disavow such dreaminess, and exercise their minds on something more substantial, tangible, and useful.

Another prefatory position, of a nature much less metaphysical and debatable, now claims attention. It involves the question of the *improvability* of the brain, considered as the instrument or apparatus of the mind. Is the brain, in that capacity, susceptible of improvement? if so, to what extent can its improvement be carried, and by what means can it be effected with most certainty, and in the highest practicable degree?

Limited at present as is our knowledge of living matter, especially as respects its susceptibility of change and amelioration of condition, to solve the second of these questions, with even an approach to accuracy, is impracticable. The task will not therefore be attempted —the task, I mean, of ascertaining *to what extent* the organ of the mind can be altered and improved in its fitness for action. That the

extent, however, is great, and its bearings diversified, is not to be doubted. In proof of this, abundant matter will be adduced hereafter.

In entering on this discussion, I am perfectly aware that I am about to tread on critical ground, and to attempt the elucidation of a subject as arduous as it is interesting. There is not in phrenology a single point, in relation to which more numerous or grosser mistakes are committed, or more groundless and deceptive charges preferred against the truth and self-consistency of the science, than as respects the aggregate of qualities, which constitutes the best condition of the brain, in its high capacity as the organ of the mind. I allude to that condition which gives to mental action its widest compass, greatest power and brilliancy, and most entire efficiency. Nor is there, perhaps, another point of equal importance, which phrenological writers have so slightly considered and so imperfectly elucidated.

Persuaded of the truth of this representation, and regarding the matter referred to as of peculiar moment in the science of mind, it is my design, on the present occasion, to make it the subject of a brief disquisition. And while thus employed, though on some points mere thoughts and opinions may be suggested, nothing but facts shall be adduced as argument.

As already stated, my chief reason for attempting such an elucidation of the subject before me, as may render it plain and easy of comprehension to every enquirer, is that, in its present state, it is one of the commonest grounds of opposition to phrenology, and one of the most fruitful sources of cavil at its doctrines. True, like every other form of anti-phrenological effort, the opposition is feeble and the cavil frivolous. Yet they still exist. And however groundless they may be in themselves, and futile in the eyes of enlightened phrenologists, they are often held up, and made to act as barriers to the belief of those whose information on the subject is immature and limited. For this reason, and as advocates of truth, the friends of the science should attempt their extinction. As one of these, therefore, I shall engage in the enterprise without further preface; and bring toward its accomplishment such resources as I can command for the purpose.

By the foes of phrenology, its advocates are charged with an attempt to maintain, as one of their settled and fundamental tenets, that the size of the human brain is alone the correct measure of the amount and strength of the human intellect. In more definite language, that as are the dimensions of the contents of the cranium, so are, and must be, the mental compass, power, and action of the individual to whom they belong.

From whatever cause or motive it may arise, this is a casual mistake, or an intentional misrepresentation, which might be well called

disreputable, not to characterise it by a more condemnatory epithet. Phrenologists, as their writings and teachings abundantly prove, do not represent size alone as the exclusive measure of the power and excellence of the human brain. It is but *one of the elements* of that excellence. And there are *four* or *five* others, each possessing a kind of influence peculiar to itself, and an amount proportioned to the degree of its existence in the organ.

Size, however, is a leading element in giving power to the brain, as it is in giving power to every thing else. I say to "every thing else;" and my meaning corresponds to the broadest interpretation of the language employed. The position admits neither limit nor exception. Throughout creation, as far, at least, as human discovery has penetrated, including both dead and living matter, other things being alike, size is the exact and never-failing measure of power and influence. This is a primitive and positive truth in science, as unlimited and unimpeachable, as that which pronounces the whole to be greater than a part. It is indeed the same truth, expressed in different language, and applied to the purposes of a different branch of knowledge.

That this point may be correctly and definitely settled, let it be analysed and subjected to the requisite scrutiny; and it will pass the ordeal without harm or hazard. Nor is it less applicable to cerebral substance, than to any other form or description of matter. Be it observed here, once for all, and borne in remembrance, that the brain, being a living organised substance, is governed by the same laws, and changed for better or worse by the same means and modes of action, with other masses of matter in like condition—I mean organised and living masses. Let us select muscular substance as perhaps the best test for those attributes of brain which I am now considering.

That, other things being equal, the size of muscles correctly indicates the amount of their strength, is doubted by no one. A man possessing large muscles is always regarded as proportionally strong, unless he be influenced by debilitating causes. Of this truth, even the inferior animals have an instinctive perception. Hence small dogs, horses, black cattle, sheep, and deer, rarely, if ever, make an attack on large ones. Or if so, it is only when several small ones try their strength with one large one. A pack of wolves will attack and destroy a horse or a bull; but a single wolf will retreat from him.

Enfeebling causes, moreover, that are in constant operation on us, are both numerous and various. Yet numerous as they are, their influence is limited. Take, therefore, promiscuously from the same crowd, a hundred large men and a hundred small ones, and the average of muscular strength will always preponderate in favour of

the former. Respecting brains, the same is true. Take, without selection, a hundred men with large heads and a hundred with small ones, and the average of intellect possessed by the former, will uniformly surpass that possessed by the latter. Yet, for reasons to be rendered hereafter, there will be found among the small men some individuals superior in muscular strength to other individuals among the larger men; while, in like manner, in given individual cases, some of the party with small heads will exceed in intellect some of the party with large ones. And in each instance the same causes explain satisfactorily and alike the deviation from the general rule, that size is the measure of power, as well in the cerebral as in the muscular tissue. Indeed, it would be easy to show, on physiological principles, that all sorts of agency, which strengthen or enfeeble, improve or deteriorate brain, muscle, and other organs, are virtually the same. Nor can the case be otherwise. The parts acted on, injuriously or salutarily, are but so many tissues or forms of organised matter, and enter as separate portions into the same body, which, though thus composed of many distinct parts, constitutes notwithstanding, as a whole, a living unit. Of this unit, therefore, all the subordinate organic elements are necessarily governed by the same system of vital laws, and influenced alike by the same agencies.

Were it important for me to dilate on this subject, with a view to its further development and confirmation, the nervous system would furnish me abundantly with facts in illustration and proof of it, which nothing could contravene.

Other things being alike, the power of a nerve is always precisely proportionate to its size. The optic nerve of the eagle, and the portion of his brain corresponding to it, are surpassingly large; and his vision, in conformity to them, is pre-eminently powerful. Of the optical apparatus and the vision of the falcon, the vulture, the lynx, and of certain other birds and beasts of prey, the same is true. So is it of the hare and the chamois goat. Their eyes and optic nerves are unusually large, and their sight keen in a corresponding degree. And in all animals of dim and feeble vision, the visual apparatus is correspondingly small. Of this, the mole and the screech-owl give proof.

Of the several varieties of the canine race, the keenness of the sense of smell is widely different. And so is the volume of the olfactory provision, the size of the nerve, and the capacity of the nostril, always corresponding to the vigour of their faculty. In the fox and the stag-hound, which pursue their game by the scent alone, the volume of the nerve of smell is large, and that of the nerve of sight but small; while in the greyhound, which, in the chase,

depends entirely on its eyes, the reverse is true—its optical apparatus is large, and its olfactory small.

In the horse and the ass, the hare and the deer, hearing is known to be acutely sensitive; and their auditory organs are proportionately large.

Of the senses of touch and taste, the same may be affirmed. Wherever they are unusually vivid and strong, the instruments for their performance are unusually massy. In our own systems, this is very strikingly and beautifully illustrated. Our chief seat of touch is the hand and fingers. And, in perfect adaptation to the power of their function, the nerves of sense distributed on those organs, greatly surpass in size the nerves of feeling distributed elsewhere. From several of the inferior animals, testimony to the same effect may be abundantly derived.

Nor is my subject yet exhausted. Is the power of voluntary action of any muscle or set of muscles peculiarly vigorous? They are supplied with motive nerves peculiarly large, or with smaller ones in peculiar abundance.

In correspondence with these several views, the inferior animals generally surpass ourselves in muscular strength, in proportion to their size, and fall short of us in the strength and keenness of their feeling—I mean their sense of touch. And, in conformity to this, their voluntary motive nerves are comparatively larger than those of man, and their tactual ones comparatively smaller.

To pursue and illustrate farther the parallel between the muscles and the brain, in relation to the causes which modify their condition, and alter their power and energy of action. These causes in the aggregate are, *size, temperament, health or soundness, education or appropriate and habitual exercise, age,* and *the degrees of temporary excitement,* which occasionally exist. The influence of size in imparting strength having been already considered, I shall now offer a few remarks on the other elements of power just enumerated, and the influence they produce. And, first,

Of *temperament.* The influence of this, in bestowing on living matter, or withholding from it, strength and activity, more especially perhaps the latter, is great. According to our best understanding of its nature and composition, temperament consists, in part at least, in the minute and peculiar organisation of parts—probably in the different proportions in which the several simpler organic tissues (especially cellular membrane, lymphatics, blood-vessels, and nerves) enter into the structure of the more compound organs of the body; and the greater or less compactness and tensity of those tissues.

The more compound organs especially referred to are the brain and nerves, and the muscles, tendons, membranes, and glands. That the bones are also affected by temperament, cannot be doubted; but to what extent is unknown.

Of the tissues, some, being of a higher order than others, are possessed of a superior degree of vital activity, power, and efficiency. Foremost in these respects are the blood-vessels and nerves—in more fashionable language, the nervous and sanguineous tissues. Accordingly, when they preponderate in the organisation, the system in all its parts is characterised by superior strength in proportion to size, combined with a higher degree of activeness. On the contrary, the cellular and absorbent tissues being of an inferior caste, when they superabound in the structure of parts, comparative dulness and debility are the product.

Thus may be explained the production of three temperaments, the sanguineous, the nervous, and the phlegmatic, differing from each other in tone, activity, and power. To these may be added two other temperaments, the choleric and the mixed, which are usually accounted of a higher and more efficient order than either of the preceding ones. To the influence of one of the two latter are the master spirits of the world—the Alexanders and Cæsars, the Cromwells and Napoleons—believed to have been indebted for much of their successful daring and greatness. Into the catalogue of temperaments is usually introduced another, under the denomination of the melancholic. On its constitution and character, however, it is not my present purpose to dwell, as it does not often occur, to influence the strength and activity of either the body or the mind, and is perhaps nothing else than an ultra-degree of the choleric temperament—a degree pushed to the verge of disease and debility; if it be not itself a form of disease.

There appear, then, to be five temperaments, or modifications of constitution, which more or less influence the efficiencies of man. And the different degrees of capability which they bestow would seem to arise from the comparative tensity and vividness of the animal fibres which severally belong to them, and the different degrees of compactness with which those fibres are united, in the tissues and general structure of the body. It is moreover quite probable, that the various degrees of fineness and delicacy of the fibres, which enter as elements into the composition of our bodies, have also an influence in the formation of character. Added to the superior refinement and sensitiveness, which they can hardly fail to create, they must produce a pliability, ease, and sprightliness of action, which are not only graceful and pleasing, but also useful, as attributes, both mental and corporeal. There can hardly be a doubt that the surpassing spright-

liness, grace, and attractiveness of woman, as well in the manifestations of her mind as in the movements of her person, arise from the peculiar refinement of her organism. Indeed, there would seem to be no other source from which they *can* arise.

To form a temperament of the highest order, the union of four qualities would seem to be essential. These are, *tone or tenseness of fibre, compactness of structure, vitality*, and *sensitiveness*; each of them consummate in kind and degree. Such a temperament is necessarily mixed—being compounded of the sanguineous, the nervous, and the choleric. From the first, it derives high vitality; from the second, sensitiveness; and the requisite *tensity* and compactness from the last.

That the choleric temperament bestows tensity and compactness on the muscles of the body, is obvious. Hence the comparative solidity and hardness of those organs to the touch, in persons in whom that temperament prevails. And that in the same individuals there is a kindred tensity and compactness of the brain and nerves, is an inference which cannot be reasonably questioned. Nor is it less certain that the sanguineous temperament gives abundant vitality to the muscles; because it supplies them abundantly with arterial blood. And that fluid is the immediate source of life to them, and to every other organ which it supplies with nourishment, the brain and nerves not excepted. To the nervous tissue, moreover, the sanguineous temperament is as liberal in its supply of blood as to the muscular. Sensitiveness, of course, wherever it exists, is the product of the brain and nerves.

To complete the sanguineous temperament, and to heighten and strengthen the character of the mixed one of which I am speaking, a large and well proportioned chest is essential. The reason is plain. Such a chest contains voluminous and vigorous lungs to vitalize the blood, a large and powerful heart to give force to its circulation, and blood-vessels, corresponding in size, to convey their fluid copiously to every part of the body. To these characteristics, add a short and thick neck, and a large brain well developed in its several organs, and the aggregate must be accompanied by talents of the highest order. Subjoin the requisite kind and degree of cerebral training, and the fortunate and rare possessor must be consummately great.

The worst of all temperaments is the phlegmatic, the predominant characteristics of which are, laxity of fibre, a want of compactness in the union of fibres, defective vitality, dulness, and debility. In evidence of the truth of this, persons possessing that temperament are marked by a softness of muscle, a feebleness of circulation, and a want of vitality, as is manifested by them in feeling, action, and

thought. Their chest, lungs, heart, and blood-vessels, are comparatively small.

The three other simple temperaments, though inferior to the mixed one already spoken of, are far superior to the phlegmatic. Of these, the sanguineous is perhaps the lowest in efficiency, and the choleric the highest, the nervous holding a station between them. Some of the external marks of the temperaments, by which they may be known in themselves, and distinguished from each other, will be noticed hereafter. I shall only further observe of them at present, that they are constitutional attributes, and therefore pervade the entire system. In each individual, I mean, the temperament is *general*, that of the nervous, vascular, muscular, cellular, and every other tissue, being the same. There are not, as some physiologists have alleged, several temperaments in the same person, some of them belonging to certain sets of tissues or organs, and some of them to others. Yet there is reason to believe that, in many cases, the same temperament is higher toned in some organs than in others. This difference probably arises, at least in part, from the degrees of exercise and training, which, from peculiar causes, certain organs undergo beyond the amount sustained by others: and of which it is my design to speak hereafter. Nor is it by any means *certain* that, in some cases, the same individual does not receive from nature distinct local temperaments, confined to different parts of his body.

*Sound organisation and healthfulness* make another element essential to the vigour and efficiency of the brain. In illustration of this, I may again refer to the muscular system. It need hardly be observed, that, to the natural and vigorous action of that class of organs, the qualities just specified are indispensable. A muscle imperfect in its original organisation, or in any way diseased, is, in a corresponding manner and degree, defective or deranged in its functions. For, if there be any thing certain in relation to living matter, it is, that as are its organisation and condition of healthfulness, so is its action. Nor is this more certain with regard to any tissue or organ of the body, than as respects the brain. The condition of that viscus, and the phenomena exhibited by it, in hydrocephalus, idiocy, madness, and delirium, testify to this point, with a clearness which no one can misunderstand, and a force that cannot be resisted. As soon shall an individual walk with activity, and dance with grace, under the calamity of a shattered or dislocated limb, or see distinctly with a disordered eye, as feel naturally, or think and reason with power and effect, under the greater and more deplorable malady of cerebral derangement.

*Exercise and training.* To every organ of the body this is an

abundant source of increased size, power, and fitness for action. Here, again, the muscles serve most obviously and strikingly for illustration and proof. From their number, situation, and functions, the changes they undergo, in size, strength, and activity, are most readily detected. But we have reason to know that the skin, the glandular system, the digestive organs, and even the bones themselves, are also increased in bulk and tone, by suitable exercise. The bones of the blacksmith's arm, and of the opera-dancer's lower limbs, are augmented in size and compactness, firmness and strength, just as certainly as their tendons and muscles. To the physiologist, moreover, the cause of this change is sufficiently plain. To the parts that are exercised, an additional quantity of blood is directed, the blood itself is ameliorated in quality, and the nutritive apparatus of the excited portions is invigorated in its functions. Hence the augmentation of the organs in bulk.

Nor is this all. Exercise not only increases the *power* of action in vital ogans; when it is suitable in kind, well proportioned in degree, and skilfully directed and applied, in creates in them a peculiar fitness for given forms of action, and a corresponding facility in executing it. It produces in them, I mean, action directed toward particular ends, and fits it for their accomplishment. It is when it takes this shape and character, that it is called education or training; and it then adds greatly to practical competency. Instances of it we have in the training of the muscles, joints, and other parts concerned in music, both vocal and instrumental; and in dancing and fencing, horsemanship and the mechanical arts. In education, conducted with a view to qualify for these performances, there is as great a necessity for the improvement of the parts in aptitude, as for their increase in bulk, activity, and power. And those attributes are all produced by the same agency, with equal certainty, and perhaps to an equal extent and effect.

In the functions of the nervous system, the improvement effected by judicious training is also remarkable. Hence the keenness and strength which the external senses acquire by practice. This is strikingly exemplified in the savages of the west, as well as in the white and half-savage borderers, who pursue the vocation of hunters and trappers. By habitual training, their vision improves in keenness and power, and their hearing is rendered almost preternaturally acute. By constant exercise in feeling the pulse, the physician's touch becomes unusually sensitive; and the same is true as respects that sense in persons who deal in soft and delicate articles of merchandise, and in the manufacture and employment of fine edge and point tools. Moss, the blind Scotish philosopher, brought his touch, by cultivation,

to such exquisite perfection, as to be able to detect by it the colours of cloth. And other individuals are reported to have done the same.

Nor is improvement in the senses of taste and smell less remarkable in some well-trained florists, and in many inveterate tea, wine, and cordial-drinkers. In illustration of this, the reader will accept, for as much as it may be worth, the following anecdote. Though it was gravely related to me as a truth, it will be remembered that I do not vouch for it to that effect. Like the story of the faithful dog of Ulysses, it may be true in principle, though not perhaps in fact.

A pipe of Madeira was broached peculiar in flavour. One keen-palated wine-bibber, on sipping a glass of it, said it tasted of iron; and another, of leather. The two champions of taste, each proud of his renown, and determined not to forfeit it by admitting the fallibility of his gustatory skill, were unable to decide the controversy by the goblet. As they persevered, moreover, in imbibing the beverage to quicken their sensitiveness, and in defending each his own opinion, the strife very naturally waxed warmer and more noisy. Reluctantly, at length, persuaded to admit the *possible* fallibility of their taste, they were induced by the bystanders to adopt a less dubious mode of decision, by a thorough examination of the interior of the vessel. The wine being accordingly drawn off, *an iron key, with a strip of leather* fastened to it, was found in the pipe! The two combatants, therefore, having mutually triumphed, joyously shook hands, and embalmed their friendship, and did homage to their taste, in "another bottle."*

To the brain itself, the principle illustrated by the foregoing remarks is peculiarly applicable. Beyond most other organs, that central mass is altered and improved by judicious exercise. It is augmented in size, and materially changed in development and shape. This is *known* to be true. And, on the ground of what is considered substantial evidence, the same organ is believed to be also increased in compactness, and heightened in intensity and fitness for action. Hence its improvement in power and efficiency. In verification of some of these points, the following authenticated facts are adduced.

Sir William Herschel did not engage in the study and severe pursuit of astronomy until, I think, about, or perhaps after, the fortieth year of his age. From that period, his application to the study of the science was uninterrupted and intense. Three casts of the front

* Since the above was written, I have met with this anecdote, for the *first* time, in a work of the last century. Still, however, I shall not expunge it, but submit it to the reader, who may regard it at option as a fact or a fiction. Whether true or false, it is in keeping with the principle for which I am contending.

part of the astronomer's head were taken, at as many different eras, and are now in the cabinet of Deville, of London. The first was taken about the time when Sir William began his ardent devotion to the stars, and the two others at different periods some years afterwards. And in each cast the cerebral organs, especially exercised in the study of astronomy, are palpably different in development and size. They are smallest, as taken at the first period, largest at the last, and intermediate at the middle one. The form of the head, in consequence of this growth of portions of the brain, underwent, of course, a corresponding change; and the strength, activity, and efficiency of the organs increased with their bulk, and with the invigorating exercise and excitement they sustained.

Instead of an astronomer, had Sir William become, at forty, a blacksmith, or a boatman, the result would have been as different as the form of pursuit, and in precise correspondence with it. His brain and head would have remained as they were, and his arms and shoulders, with all the muscles subservient to their movement, would have become larger and more compact, more powerful and active. And the different kind of exercise and training would have been the cause.

I am intimate with a gentleman, now advanced in years, who, in the early part of his life, was much addicted to the exercise of the organs of Ideality and Comparison. He marked more or less with the figurative, fanciful, and high-wrought products of them, almost every thing he wrote. For the last fifteen or twenty years, however, he has, to a considerable extent, changed his subjects of research, and style of writing, and restricted himself closely, and at times very intensely, to the exercise of his reasoning faculties. The issue is striking. His diction is much more terse, compact, and unornamented, and his manner more argumentative and logical. And his organs of Causality have very perceptibly increased in size. This latter fact is conclusively established, by the marked differences between several likenesses of him, which have been painted at different periods of his life. The portraits of him that were taken from twenty to thirty years ago, show much less of Causality than those which have been more recently taken.

In individuals, moreover, who, even in the decline of life, have become, in contradiction of their former habits, seriously and zealously devotional in their character, the religious organs have been often visited by a second growth. I once possessed a portion, but have unfortunately lost it, of the skull of a person of this description, whose religious fanaticism was ultimately sublimed into permanent insanity. The lunatic, for several years, spent much of his time in

the most fervent paroxysms of adoration and prayer. And the change which Veneration underwent in him was remarkable. The organ grew to such an extent, as to produce a preternatural indentation on the *internal*, and a corresponding protuberance on the *external*, table of the cranium.

Nor can a doubt, I think, be reasonably entertained, that in poets and painters, sculptors and mechanics, who pursue their callings with ardour and perseverance, their predominant organs, which they thus intensely employ, are augmented in size by the exercise they undergo. And, in each case, the compactness, power, and activity of the organs keep pace with their growth.

The head of Napoleon Bonaparte, at the different epochs of his life, and under the different stations he filled, affords, in phrenology, one of the most interesting and instructive lessons that can any where be found. That, in the progress of his wonderful career, his whole brain, but more especially the reflecting organs of it, increased very materially, not to say very greatly in size, cannot be doubted by any one, who has examined carefully and without prejudice, particularly under the light of sound physiology, the likenesses of him, whether on canvass or in marble, taken by different artists at the several periods to which reference has been made.

The resemblance to each other of those likenesses, taken at any given era, is striking; while their dissimilarity to the likenesses taken at anterior or subsequent eras, is scarcely less so. And at each successive period, the size and form of the head, as expressive of intellect, is remarkably improved. Nor can the enlightened physiologist be ignorant, or even doubtful, as to the cause of this improvement. It was the intense, I might well say, the unexampled and preternatural excitement which his brain sustained in meditating and maturing his military movements, his political and civil measures, and his wild and gigantic schemes of ambition.

I know it may be said, and has been said, that the artists who painted and sculptured him, as emperor, flattered him, by giving to him the size and form of head which phrenology pronounces of the highest order. In plain terms, that their likenesses of him were mere fancy pieces.

To this supposition the answer is plain. The artists who delineated him as emperor were not phrenologists—but the reverse. Nor, had they been so, would they have dared to phrenologise him, who was known to be a foe to the science, and a contemner of its advocates.

It has been said, again, that the likenesses of Napoleon, as emperor, are nothing but finely modeled and highly finished antiques. This is another palpable mistake. No head, whether Egyptian, Greek, or

Roman, can be produced, bearing the slightest resemblance to the head of Napoleon. Or if so, I have never seen it, and shall be pleased to be informed where it may be found. The portrait of the great modern is unique. Antiquity has nothing like it. And it produces of itself a full conviction that it is true to nature.

Nor is this all. By many who knew Napoleon well, I have been confidently assured, that the likenesses of him as emperor were strikingly correct. This assurance I received especially from Cuvier, Larrey and Grouchy, Lefevre and Lallemand. The latter officer had a splendid miniature of his imperial master, taken by one of the first artists of Paris, the head of which was identical in outline with the others that were drawn when he held the sceptre.

Indeed, as far as I am informed, no one who was intimate with the emperor's personal appearance, has ever questioned, much less denied, the correctness of the likenesses of him taken at the time when he wore the purple. Yet are those likenesses universally acknowledged to differ most materially from such as had been taken at an earlier period. The latter, I say, were inferior in size in all parts of the head, very especially in the region of the reflective organs.

Nor do I entertain the slightest doubt, that, after the seclusion of Napoleon at St. Helena, where his brain sunk into comparative inaction, and became diseased, his head decreased again in size, especially in the intellectual compartment, and underwent a corresponding alteration in shape.

This is unquestionably the case, if the mask of him, taken by Antommarchi after his death, be at all correct. The lineaments of the emperor's head are not there. The cast is comparatively contracted and inexpressive.

In further illustration and proof of the principle here contended for, suppose the following experiment to be made:—

Two youths, as much alike as can possibly be found, in years, size, and figure, temperament, intellect, and other attributes, corporeal and mental, are selected for the trial. Let them be of the same family—even *twin-brothers*.

Of these striplings, when at the age of fifteen, one commences the life of a student, or cultivator of the mind, and the other that of a farmer, or cultivator of the soil. And these occupations they steadily and ardently pursue until the age of forty-five, having never, in the intermediate time, been in each other's company. Will they then very strikingly resemble one another, in a single attribute of either body or mind? No, they will not. Such a result would be hardly short of a miracle. If not supernatural, it would be an event

eminently unnatural in the history of man. In their developments and general figures, the two individuals will be exceedingly dissimilar. The student will have the largest and best shaped head; and the agriculturist will excel in his muscles and person. Nor will the difference be restricted to mere size and shape. While the former will surpass the latter in the compactness, vigour, and activeness of his brain, he will be inferior to him in the same qualities of his muscles and joints. To the truth of this representation, though he may never have seen the experiment made, nor even previously thought of it, the enlightened physiologist will not hesitate to subscribe.

So much for the individual effects of different forms of education and learning. But communities and nations are nothing else than masses of individuals. Under like circumstances, therefore, they are acted on and influenced in a manner similar to individuals; and, under different circumstances, in a manner equally different.

But savagism and civilisation, which are but states of education and training, place nations under circumstances peculiarly different. So do different *degrees* of civilisation; and therefore, at different periods, give different conditions to the human family. And these conditions attach chiefly to the brain and nerves, more especially, perhaps, to the sensitive and sympathetic nerves. For that the improvement in our condition, denominated civilisation, consists in a corresponding improvement in our nervous system, no enlightened physiologist can doubt. Why? Because improved civilisation is but another name for improved feeling, and improved intellect.

What, then, is the condition of the cerebral and nervous systems of the civilised and enlightened nations of Christendom *now*, contrasted with their condition a few centuries ago, when their civilisation and knowledge were greatly inferior? The answer seems plain. The moral and intellectual compartments of the brain are larger and higher-toned, more active and vigorous. And no doubt the sensitive and sympathetic nerves have been similarly changed. Our intellectual, social, and moral organs have gained over our animal a higher ascendency than they held in former and less cultivated times. Hence the striking decline in human ferociousness and cruelty of every description—in war, inquisitorial persecutions, and in the forms of punishment for crimes against society—and the advancement, no less striking, in knowledge, clemency, and moral feeling. And as civilisation and its concomitants shall advance in time to come, those portions of the nervous system, which minister to its promotion, will increase in size, activity, and vigour, until they shall have attained the highest perfection of which they are susceptible. I should rather

have said, that the highest practicable stage of human civilisation and improvement will *follow* the highest practicable improvement in the size, activity, and vigour of the brain and nerves. For there is nothing in anthropology more certain, than that every form of mental advancement is the result of a corresponding advancement in the condition and character of cerebral matter, serving in the capacity of the organ of the mind. From this change in the human temperament arises the superior amount of madness in modern times, the different characteristics which mark diseases, the disappearance or decline of old diseases, and the appearance of new ones.

The artificial growth and invigoration, as they may be called, of the organs to which I have hitherto referred, are such as contribute to the elevation and improvement of the standing and character of those who possess them. The reason is plain. The organs thus trained, enlarged, and strengthened, belong to the moral and intellectual classes. The tablet, however, may be reversed, and too often is so, to a deplorable extent.

The animal organs may be exercised and invigorated, and the issue be ruinous. Of this, we have a memorable and repulsive exemplification in the practice and character, the condition and fate, of the sot and the glutton. They cultivate, enlarge, and strengthen the organ of Alimentiveness, until it gains such an ascendency over their nobler faculties, as to degrade and brutify them. When that organ, together with other animal and kindred ones, is thus, by long-continued exercise, increased in size, excitability, and vigour, the disease of general sensuality, and of sottishness in particular, (for it *is* a disease,) becomes not only chronic and inveterate, but structural and constitutional; and is transmitted, like other constitutional qualities, from parent to child. Hence the sons of confirmed drunkards are so frequently and fatally drunkards themselves. And hence the extreme difficulty of exterminating the evil. To eradicate this organic derangement from the brain, when it has assumed, from duration, a chronic character, is as difficult and hopeless as the cure of cancer or tubercular consumption. It is, indeed, a task of a similar description. Nor, if it can be effected at all, can any measures accomplish it short of long-continued, steady and persevering abstinence from stimulating food and drink,—to hold in tranquillity, and reduce in vigour, the organ of Alimentiveness, together with the other animal ones,—to which must be added, the training and strengthening of the moral and reflecting organs. The latter expedient acts in a two-fold way. While it operates physiologically as a direct revellent, it gives strength and activity to reflection and moral sentiment, and arrays them against the impulse of animal appetite. By such a course,

judiciously regulated, and resolutely and unremittingly pursued, may gluttony and drunkenness be in most cases removed—perhaps in *all* cases, if opportunely commenced, and skilfully persevered in to the requisite extent. Nor can a doubt be entertained, that, in obstinate cases, depletion, local or general, or both suited to the occasion, may be employed as an appropriate and useful auxiliary. The disease, I say, consists in a highly excited, if not a sub-inflammatory condition of a given portion of the brain, and must be removed by the same means requisite for the removal of a like condition from other portions.

To the other animal organs—Amativeness, Combativeness, Destructiveness, Secretiveness, and Acquisitiveness—similar remarks may be correctly applied. Excitement and exercise enlarge and strengthen them; unbridled action in them leads to vice and irregularity always, and not unfrequently to disgrace, misery, and ruin; and the only way to control the propensities which belong to them, and thus prevent or eradicate the evils to which they lead, is to moderate their action, by the removal and avoidance of their exciting causes, curb and restrain them, by the cultivation and strengthening of the countervailing moral and reflective organs; and, in aid of these means, to employ such depletion, diet, and regimen, as cases may require.

By a course of this description alone, can his animality be brought into subjection to his higher and nobler nature, and man be elevated to the condition of a truly moral and reflective being. And by such course, wisely directed and duly persisted in, this end, so deeply important to our rank and well-being, can be attained, as uniformly and certainly, as can any other event be produced by the suitable agency of its natural causes. If man, therefore, continues vicious and unhappy, the fault and the misfortune are attributable to himself; not to any thing in the cast of his destiny which he cannot control. Whatever he does, he does freely, though in strict subserviency to the influence of motives. I shall only add, that flagrant immorality, profligacy, and crime, are as essentially the product of functional excess or structural derangement of the brain, or of both united, brought on by abuses which might have been avoided, as pneumonia is of similar affections of the lungs, hepatitis of the liver, or dyspepsia of the stomach. And, under skilful treatment, opportunely commenced and unremittingly persisted in, the moral maladies are as remediable as the physical I repeat, therefore, that if man becomes and continues a moral lazar, the sin and responsibility are his own; and the penalty and punishment, which inevitably follow, are equitable and just. His purification and amendment are fruits within his reach, if he choose to pluck them. As a voluntary transgressor, therefore,

he deserves the fate which he virtually invokes, and recklessly defies.

*Age.* On this topic, but little need be said, though it is rich in matter of interest and moment. The effect of age, or period of life, on mental manifestations, is known to every attentive observer; and to every one thoroughly versed in anatomy, its effect on the brain is equally well known. The enlightened phrenologist, again, is familiar with the fact, that between the condition of the brain and the manifestations of the mind, at different periods of life, there is a striking correspondence. So striking and characteristic, indeed, is this correspondence, that it furnishes a leading and irresistible argument in favour of the truth of one of the fundamental propositions of phrenology.

As respects the human brain, it has, like the muscles and joints, as many ages, if not one more, than Shakspeare gives to man. There is, for instance, a brain of infancy and childhood, another of boyhood, a third of juvenility, a fourth of early manhood, a fifth of mature manhood, a sixth of declining manhood, a seventh of early old age, and an eighth of the childhood of extreme senility. And each of these differs more or less from all the others. So do the manifestations of mind, at the different periods of age through which the brain passes, differ from each other in a corresponding manner and degree.

In infancy and childhood, the brain is superabundant in fluid substance, and therefore tender and feeble, defective in organisation, and altogether immature. And on a similar scale of defect, debility, and crudeness, are the faculties of the mind.

In boyhood and juvenility, both the brain and the mental powers are advanced and improved in condition and strength; in early manhood their improvement is still higher; and, by the prime of life, they, like the muscles, bones, and other tissues of the body, are also in their prime.

The next change of interest and importance exhibited by the brain and the mental phenomena, is when they enter on the downhill portion of their journey; and that portion they also pass over in the same harmony, in relation to the mutations sustained by them, with which they had previously made their ascent. Every deterioration which the lapse of time produces in the brain, is accompanied by a like deterioration of mental action. And thus proceed the kindred changes, until death arrests them.

Such is the cerebral and mental history of every member of the human family, whose life is protracted to the period of old age. And, I repeat, that around one of the fundamental truths of phrenology it forms a rampart which nothing can either penetrate or overthrow.

From the preceding remarks, it is fairly deducible, that the age, or period of human life, which gives to the brain its highest excellence, as the organ of the mind, is the meridian of manhood, when the entire system is ripe and in its prime, and when the organisation of every part of the body (the brain being one of them) is as complete, and its structure as compact and excellent, as the temperament possessed by the individual admits. In this respect, as in all others, the analogy between the action of causes on the brain and the other organs of the body, whether to impair or improve them, is not only striking, but it is without defect. Or if there be a difference, it is, that the positive prime of *cerebral* life occurs a few years later than that of the other parts of the body. There is reason to believe that, under judicious cultivation, the brain of some persons may continue to improve in condition, until the age of forty-five. At that time its balance is supposed to be most complete. And the opinion appears to have claims on our belief. After that age, the mind may become still farther enriched with knowledge; but not more vigorous or adroit, in the use of the knowledge already possessed.

Under this head of my subject I shall only add, that, of the several terms or periods of our lives, there is only one which we can so control, as to protract or curtail it at pleasure. And that is the most important term; being that which runs from the period of intellectual manhood, to the commencement of positive intellectual decay. Fortunately, I say, there are means within our reach, by which that term, by far the most efficient and useful of our lives, can be materially extended. And those means consist in a strict avoidance of irregularity, dissipation, and unnecessary exposure. In other words, they consist in obedience to the injunction of the Apostle, "Be temperate in all things"—in eating and drinking, sleep and wakefulness, the indulgence of the passions, emotions, and affections, the exercise of mind and body, and in all enterprises and forms of exposure, and whatever else may be calculated to make a lasting impression on our systems. By the pursuit of such a course, I say, the commencement of real intellectual fading may be greatly postponed. To illustrate this position, and show its soundness:

Suppose the age of thirty to be the beginning of the period of ripe manhood. At this point of time, let two individuals of like constitutions commence their career; one as a reckless profligate, addicted to every form of excess and vicious indulgence; and the other as a pattern of temperance and regularity. Let neither meet with any accidental and crushing disaster, but experience alone the natural effects of the life he pursues. Make this experiment; and mark the result. At forty-five, the profligate will be older, and more shattered

in constitution, and more incompetent to arduous struggles and useful employments, than he of orderly deportment, and virtuous habits, will be at sixty. Let a third person pursue, as a third course of life, a mean between the two, and he will be broken down, and rendered inefficient, at a mean period—earlier than the man of strict temperance, and later than the profligate.

It need hardly be added, that a regular perseverance in suitable exercise does much towards the preservation of the health and vigour of all parts of the system. This is as true of the brain and nerves, as of the muscles and joints. By the temperate and well adjusted exercise of all the organs of the brain, pursued to the proper extent, the old age and decrepitude of that viscus may be for many years deferred. An adoption and resolute persistence, in such a course, will insure to the faculties of the mind more elasticity and vigour, even at the age of three score and ten, than they would have had at that of fifty, if incrusted in the rust of indolence and inaction. In proof of this, many illustrious examples might be cited. Among the crowd that presents itself, I shall refer only to those of Voltaire, Goethe, and Franklin, Jefferson and Priestley, Madison, Adams, and Talleyrand. Those great men exercised their minds regularly and constantly to the close of their lives. And the consequence was, the preservation by them of a degree of mental activity and vigour great—I had almost said, astonishing—for their years. But a short time before his death, Dr. Priestley, too feeble to *write*, *dictated* a pamphlet of considerable length, in less, I think, than four-and-twenty hours. And the performance, though far inferior to what he could have produced, and *did* produce, at forty-five, was highly creditable.

To carry out these views, and render them more palpable and impressive, let the term of which I have been speaking, be contrasted with any other well-marked term which we pass over, in our journey through life, and the issue be noted. The first term or epoch in our career, is that of infancy or childhood; and it closes about our seventh year. Nor can it, by any means at our command, be either materially shortened or extended. The second term, reaching from the close of the first to puberty, ends from the thirteenth to the fourteenth year of life, and, as regards its duration, is equally intractable. The third, extending to early manhood, closes, with equal certainty and ungovernableness, about the age of twenty-one. And from that to mature manhood, which arrives at twenty eight or thirty, the number of years is nearly the same. Nor can that term be lengthened or shortened, any more than the preceding ones. After the commencement, moreover, of confirmed old age, with its decrepitude and debility, *its* pro-

gress also is always steadily, and for the most part speedily onward and downward, in defiance of all attempts at control.

Once more. I have said that the influence of age on mental operations is known to "every *attentive* observer." And so it is. But many persons confidently speak and write on the subject, not only without the instruction which correct observation imparts, but in the very face of it. Thus, in necrological articles, it is frequently asserted, that individuals have died at the age of eighty, ninety, or a hundred years, *with all their mental faculties unimpaired.*

This is tantamount to the assertion of a miracle. No such event has ever occurred in modern times. Nor can such occur, without a radical change in the organic and mental laws and principles of our nature. A centenarian with all his mental faculties unimpaired! As well might our necrologists speak of a man of equal age, with the elasticity and vigour of his muscles and joints, his swiftness in a foot-race, and his nimbleness in the dance, unimpaired. True, a centenarian can walk, think, and talk, and possibly, also, declaim and write. Not, however, as he could have done when in his fortieth year. In a special manner he cannot, without exhaustion, so long persist in such exercises. He may converse with sprightliness, for a few minutes, on topics which have long been familiar to him. But as respects passing events, and new topics of science, his mind is a blank; and he can exercise it but briefly on any topic. But substantial strength is much better evinced by long persistence in an effort, than by the momentary vigour by which it is characterised. Mr. Jefferson, when, I think, in his eighty-second year, and Dr. Priestley, when past his seventieth, gave striking proofs of this. They would converse with all the alacrity, and not a little of the apparent vigour, of their earlier years. But the effort was soon at an end; and the sages would pause, retire within themselves, until their strength was recruited for another limited manifestation of what they had been at an antecedent period. In these reviving pauses, I have repeatedly seen Dr. Priestley fall into a momentary slumber at table, and, suddenly awaking, rejoin in conversation. So true is it, that a temporary exertion of mind, though apparently vigorous, gives no substantial evidence of positive strength.

From the preceding remarks, under the present head of the subject before me, the only inference I shall now draw (and I am authorised to draw it) is, that the brain is truly the organ of the mind—that, like our other organs, it is influenced by years—that it possesses its highest excellence in the prime of life—and that it is crude and imperfect in infancy and childhood, and impaired, like the muscles, under the decrepitude of age.

*A temporary state of inordinate cerebral excitement*, inviting to the brain an unusual amount of arterial blood, is another important element in the most fruitful and efficient condition of that organ. This excitement is the product of sundry causes.

A paroxysm of fever, especially the hot stage of intermitting fever, with a tendency to the head so strong as to be barely short of delirium, is frequently the source of this condition of the brain. Under that degree of excitement, the mental action is more than ordinarily vivid and energetic, productive and brilliant. Even in persons of a phlegmatic temperament, there is not unfrequently now a lustre of the eye, a keenness and promptitude of perception, a scope and flashiness of thought, and an exuberant and glowing stream of language, which call forth at once admiration and surprise. Every faculty of the mind being thus improved in tone and character, the sick person converses, I say, with greater fluency, reasons with greater clearness and cogency, manifests a readier and richer creativeness of fancy, and clothes his creations in colours brighter and more gorgeous than he ever compasses under the cool and sober commonplace of health. Nor is the cause of this mental orgasm concealed. The blood being superabundantly arterialised by the heightened function of the lungs, and projected towards the head in ultra-profusion by the inordinately invigorated action of the heart, imparts to the brain an exuberance of life, accompanied by an augmented tension and tone, and thus renders it a high-strung and improved instrument for the display of the mind. And hence the superiority of the mental performance.

Persons in this condition of brain, having some of their faculties elevated far above their customary standard, and being, also, by the same condition, gifted with certain powers, to which they had been previously strangers, have become unexpectedly poetic and musical. Others, again, have grown unlike and far superior to themselves, when healthful, in the faculties of Number and Constructiveness. A distinguished mechanician in Boston, who is not unknown to me, completed *mentally*, when labouring under a cephalic fever, and actually constructed on his recovery, a complicated and exceedingly ingenious piece of machinery, which he had, for seventeen or eighteen years of health, unsuccessfully endeavoured to accomplish. He had been unable, I mean, during health, to frame a complete prototype or pattern of the machine in his mind. But this he achieved when his inventive powers were quickened, enriched, and invigorated—I might say, inspired—by a preternaturally excited condition of his brain.

These facts are known to be equally true in relation to certain

descriptions of lunatics—of such, I mean, as labour under high-toned madness. In those unfortunate and perturbed beings, given powers of mind are developed and brilliantly displayed during the tumult of their wildest paroxysms, of which, in the unexcited state of their lucid intervals, they make no manifestation. Among these paroxysmal developments may be enumerated, an inspired condition of Ideality and Tune, Number, Causality, Mirthfulness, and Hope. And to this, may be added a similar orgasm of the faculties of Combativeness, Destructiveness, Secretiveness, and others.

Inflammation of the brain, the product of fractures of the skull, by blows, falls, and other mechanical accidents, has often proved the source of an eminent degree of intellectual improvement. Nor is such improvement always evanescent. Far from it. On the contrary, it grows permanent at times, and continues during the lives of the individuals who experience it. Many well authenticated cases of the kind are already on record. I have witnessed and registered several myself, and could add several more, were it requisite or admissible. Such cases, however, being already numerous, and unquestioned as to their authenticity, the addition would be superfluous, and will be therefore declined.

*Idiocy* itself has occasionally yielded to cerebral inflammation—to what is termed, I mean, "brain fever." Singular as this may appear, and perhaps incredible to those who are strangers to the subject, it is notwithstanding true. In such cases, the augmentation of life and tensity, imparted to the cerebral organs of the idiot by the accumulation of arterial blood in them, which accompanies inflammation, and forms an element of it, makes amends for the small size and lax condition of those organs, and their consequent debility and insufficiency for action. In other words, the same degree of cerebral excitement and arterial congestion, which would render a sound-brained man *delirious*, renders an idiot *sane*. In the records and occurrences of infirmaries and mad-houses, cases of this kind are not unfrequent.

As a very general, perhaps a universal rule, in occurrences such as these, when the inflammation and tone of the brain go down, the patient falls back into his idiotic condition. Such facts incontestably prove, that on the state of the brain depends the character of mental manifestation. Were other forms of evidence extinguished, these facts alone would testify to some of the fundamental truths of phrenology with a clearness and force which no one could either misunderstand or resist. They, moreover, sustain two very important physiological maxims—that irritation creates a centre of confluxion, and

that a preternatural accumulation of arterial blood gives a corresponding amount of life and action to the organ where it exists.

There are yet other forms of cerebral excitement, which elevate the tone and efficiency of the brain, and improve, for the time, the mental manifestations in a corresponding degree. Of this description, is the excitement produced by wine and opium. The convivial board is an opulent source of heightened music, poetry, and wit; and also, at times, of strengthened logic and sublimated eloquence. The celebrated traveling declaimer, Ogilby, never ascended the rostrum, without being under the excitement of laudanum. I have known, also, two or three distinguished lawyers, who, in preparing to speak on trials of deep interest, usually braced and fertilised their minds by similar means. That these modes of stimulation surcharge the brain in like manner with arterial blood, augment its energy and efficiency in action, and through that channel produce their invigorating effects on the mind, is not to be doubted.

Of certain forms of madness, I repeat, the same is true. They improve some of the faculties of the mind in an eminent degree. Thus, as heretofore stated, the lunatics who labour under them, are much more poetical, musical, and mechanical, and much more powerful in calculation and reasoning, during the paroxysms of their complaints, than at any other time. Indeed, some lunatics manifest those faculties only during their insanity, making no exhibition of them in their lucid intervals. In proof of this, scores of cases might be readily adduced from the histories of the insane. One of the descriptions of lunacy here alluded to occurs so frequently, and is of a character so peculiar and striking, that the French writers have given it the name of "*folie raisonnante*"—reasoning madness.

But the most interesting and important form of cerebral excitement, and that which most eminently improves the brain, winding it up, during its continuance, to the highest pitch of intensity, is yet to be cited. It is that which arises from the brain's own action. Of the truth of this, all public speakers, and every correct observer of them, especially in scenes of high-wrought oratory, can hardly fail to be sensible. The feelings which the speaker himself experiences, the paroxysm of inordinate mental power, of which he is conscious, and of which he exhibits involuntary tokens in his aspect, attitude, gesticulation, and entire deportment, are too striking to pass unobserved, and too plain in their language to be misunderstood.

When the orator first rises, surveys his audience, and commences his address, he is often pale, anxious, and agitated, perhaps to the extent of a perceptible tremor of his person and voice. Under these

circumstances, his exordium is rarely either animated and graceful in manner, opulent and varied in matter, or pertinent, choice, and vigorous in expression; nor is it poured forth in a copious and uninterrupted torrent. On the contrary, all seems comparatively limited and sterile, laboured and forced. His thoughts evolve slowly, and succeed each other heavily, with unintentional pauses, and at irregular intervals; his language is stiff and formal, restricted and cold; and, for a time, his whole performance is powerless and unpromising. Or if the thoughts, slowly uttered, have power in themselves, they are accompanied by hindrances which diminish their effect. Of this truth, Cicero has recorded his own consciousness as respected himself. Mortifying experience had taught him the lesson. And Mr. Fox was never great in an exordium, and rarely, if ever so, in any part of an opening speech. It was when fired by opposition, in the collision of debate, that he manifested that stupendous reach of eloquence which left the most illustrious of his contemporaries behind him. In a single, or set speech, or in one of a mere introductory character, Pitt surpassed him. But in the tempest of debate he was greatly his inferior. To return from this digression, and finish my picture.

At length a change in every thing commences. The countenance of the orator, losing its paleness and anxious expression, grows fuller and flusher; new animation, vigour, and confidence awaken in it, and, in its entire appearance and effect upon the spectators, it is altered and improved. And in other points, also, where defects had existed, improvement follows improvement, until the whole effort of the speaker experiences, progressively, a similar change. His thoughts and conceptions are no longer called up with difficulty, in a crude and shapeless condition, and thus, unfinished, *forced* from his lips at the intervals of minute-guns. They now spring spontaneously into existence, full-formed and mature, and press towards their object in trains so thick-coming, and throngs so crowded, as to threaten to be too boundless in number for orderly utterance. And such would be the case, did not the powers of language and expression increase simultaneously with the powers of thought. But in all its faculties the mind of the orator is equally excited and inspired, and is therefore equally vigorous in action, and exuberant in product. Hence all his powers are now in harmony. His language is as copious, choice, and forcible, as his conceptions are rich and varied, his illustrations are bright and pertinent, and his combinations and arguments ready and well selected, profound and convincing. Accordingly, flashes of wit and fancy, and high-wrought bursts of eloquence, escape him, calculated alike to attract and persuade, convince and command.

Even his voice increases in compass, flexibility, and power; and his whole action, attitude, and manner, become more appropriate and expressive, and better fitted for the enforcement of his matter, and the attainment of his end. And if he be an orator of the highest order, (and none but such can thus acquit himself,) and be engaged on a subject commensurate with his abilities, it is now that he stands forth a glorious personation of eloquence, above the imitation of art, and equaling whatever of splendour and excellence in that form of human greatness imagination can conceive. Such orators were Pericles and Demosthenes, Cicero and the Gracchi; such were Chatham, Mirabeau, and Fox; such, Henry, Ames, and Pinckney; and such, a few of our still surviving American speakers.

Is any one inclined to consider this mental portrait of an orator too broadly lined, and too highly coloured? and does he therefore regard it as a creation of fancy, rather than as a reality, which genius and cultivation occasionally produce? Had he witnessed, as I did, several of the wonderful efforts of Mr. Ames, especially his speech on the British treaty, his opinion would have been different. He would have pronounced the picture short of the original. And there is reason to believe that the oratory of Patrick Henry was still more resplendent; and that of Mr. Fox, though below it in grace and fascination of manner, was superior in power.

Of such description are some of the manifestations of mind and person, which constitute eloquence of a high order; and phrenology explains the causes which produce them. And those causes are purely physiological. They consist in an increased afflux of blood to the brain, drawn thither by the increased excitement which that organ experiences from the exercise it sustains. Such, at least, is one of the causes. To what extent a superabundant production of the cerebral fluid, or matter of influence of the brain, may form another, the present state of physiology does not authorise us to say. Nor is it orators alone, whose brains becoming thus, by their own exercise and excitement, surcharged with arterial blood, give inspiration to their minds. The same is true of writers, especially of poets. *They* also experience their happy moments of conception and mental outpouring, in which they become, as if by preternatural endowment, superior to themselves. And such moments never visit them, until they have fired their brains by periods of intense application to their subjects. Then only are they graced by Apollo and his train, and enabled to surpass even their own hopes and imaginings, by the vigour of their efforts, and the splendour of their productions. Thus did Dryden give birth, at a single sitting, to his Alexander's Feast, the most glorious lyric in the English language. And thus did Scott,

under a similar orgasm, compose, in a few hours, his battle of Flodden Field, including the death of Marmion, sufficient of itself to immortalise his pen.

That blood does flow to the brain in an augmented volume, and that in proportion to the fulness of that augmentation is the increase in the tides of thought and utterance, is felt by the speaker, and is palpable to the observer.

In the progress of his cerebral exercise and excitement, the countenance of the former, as already stated, becomes flushed and fuller, and also warmer; his eyes protrude, and flash with a heightened lustre; his carotid and temporal arteries swell and throb in an unusual degree; he feels a girding tension of his brain, which at times is even painful; unaccustomed gleams of light flit across his eyes; an alarming giddiness assails him; and instances have occurred, in which he has fallen down epileptic, and even in apoplexy. Though such high-wrought scenes are rare, they have, notwithstanding, an existence; and they speak a language easily understood. The records of eloquence furnish us with some of these cases; and I could myself add several others to the list. It is but a few years since a distinguished senator, in Washington, became so giddy in the course of one of his intense and burning addresses, that he was obliged to pause, and sit down; and the senate adjourned to allow him time to recover and proceed. And I know a young lawyer, who has several times, under the excitement of debate, been attacked by epilepsy.

All this seems clearly to show, that the splendour and efficiency of the loftiest flights and achievements of eloquence, depend on the tone and temporary excellence imparted to the brain as the organ of the mind, chiefly by a superabundance of blood. And that blood is unusually well arterialised. Why? Because the lungs, the arterialisers of it, are in high excitement, power, and action, from their exercise in speech; and because they receive at the time, in superabundant quantity, the influence of the preternaturally excited and operative brain. For it need hardly be added, that the healthful energy of the brain contributes much to a corresponding energy in other organs.

In further illustration and proof of my position, it may be remarked, that the reason why high-wrought passion is the source of such fertility and force of conception and thought, and such eloquence of utterance, is because of the abundance of blood it attracts to the brain. For that it does thus accumulate blood in the brain, is a truth which nobody doubts, and every thing confirms. Indeed, the fervid condition of an orator under high excitement, is in all respects tantamount to a paroxysm of passion. In either case, therefore, the cause of the

high-toned eloquence, and of the other improved forms of mental manifestation which accompany it, are the same.

It was under a cerebral orgasm of this description, created by the fervid and fanatical action of her own mind, that the Pythia of old raved out her oracles, which the credulity of the times attributed to the working of the God within her. And it is under a similar orgasm, the product of a similar cause, that the modern Improvisatori of the land of song pour out their wonders of poetry and music. I am aware, that the mental orgasm of the Pythia is attributed to her having chewed the leaves of the laurel, or of some other stimulating plant, and swallowed the juice. But this is a mere surmise, destitute of any solid foundation. Certainly the Italian Improvisatori seek no inspiration from any intoxicating article of the kind. And they are, on some occasions, as highly excited as was the Delphic prophetess.

Such are the elements necessary to the constitution of a brain of the highest order—a large size and well proportioned development—a sound organisation and a healthful condition—the best form of temperament, believed to be the mixed—the tone and compactness conferred by skilful and well-conducted training—the condition which accompanies the prime of life—and the heightened tensity produced by strong temporary excitement. A brain of this description and weak mental manifestations have never been united. Nor can such a phenomenon occur, until the laws of nature, which at present control the constitution of man, shall be changed or annulled. As soon shall quicksilver float on water, and a cubic foot of lead be tossed on the breeze with the lightness of a feather.

Compactness, it may be observed, increases not only the power of the brain, but also its weight; as it does the weight of muscle, bone, and every other substance. It is owing to this quality, that smaller brains sometimes outweigh larger ones, and are also more vigorous. The brain of Lord Byron, for example, though not of the largest size, was among the heaviest, as well as the most vigorous, that man has ever possessed. Its weight, I think, was four pounds, and from eight to ten ounces. And the weight of the brains of Cuvier and Dupuytren, whose heads were immensely large, was about the same. Here compactness and tensity made ample amends for any want of size in the brain of the poet, and rendered the productions of that brain the wonder of the age.

But a brain may have all the foregoing qualities, a well-proportioned development excepted, and the individual to whom it belongs possess, notwithstanding, but a moderate, or even a meager intellect. The reason is plain. The chief bulk of the brain may consist in the massiness of the animal or moral compartment, or of both united,

neither of which is a source of talent, or a repository of knowledge; while the intellectual compartment is exceedingly small. And to a diminutive organ, or set of organs, nothing can give *power*. Such organs may be distinguished by superior activity, correctness, and grace, but never by superior strength. As soon shall a dwarf in dimensions be a Hercules in "labours," or a Vulcan in lameness an Apollo in the race.

A brain, again, may be diminutive in size, while the intellect of the individual possessing it is vigorous. The reason of this is also plain. The animal and moral compartments are small, and the intellectual disproportionately large. But whatever may be the strength of intellect, or the amount of knowledge of an individual thus organised, he will be essentially defective in energy or rectitude, or perhaps in both. For energy of character is derived chiefly from the animal organs; while rectitude is the product of the moral. It need hardly be added, that a practised and skilful phrenologist finds no difficulty in ascertaining, with sufficient accuracy, the comparative size of the different compartments of the brain in the heads he examines. In his efforts, therefore, to decipher character, he may be always successful.

There is yet another agency, which in no ordinary degree influences the brain and modifies its character. It is the *partial* exercise of it—the training and strengthening, I mean, of only certain organs or parts of it; while the remainder are suffered to lie and grow feeble in a state of repose. This deranges its balance, and is so far injurious to its soundness and vigour in general action. It ripens and confirms *partial genius*, which is but another form of expression for a *want of mental harmony;* and, when pushed to an extreme, it often impairs the health of the entire system, and results, at times, in the production of madness. The form of lunacy it produces is monomania, which is known to consist in the derangement of one or a few organs, the rest being sane. And the suffering organ or organs are almost universally those which are most exuberantly developed. It must be familiar to those who have mingled much with the insane, and become acquainted with their histories, that perhaps the most frequent source of monomania is partial genius, and the intense pursuit of its peculiar objects. In other, and more general terms, monomania, as just intimated, is most usually the product of an excessive development, and the inordinate and long-continued exercise of some one, or of a few, of the organs of the brain.

It is well worthy of remark and remembrance, that it is not mental efficiency alone that is promoted by the due exercise and strengthening of *all* the organs of the brain. The same measure contributes not a little toward the maintenance of the health of the body when

possessed, and its restoration when lost. The reason is obvious. The influence of the brain over the other parts of the body, for evil as well as for good, is so powerful and preponderant, that any unsoundness in the condition, or morbidness in the action of that organ, cannot fail to prove in some way pernicious to the system which it controls. This is one cause which renders solitude, where the social and conversation organs lie dormant, so injurious to health. The enervating and morbific influence of solitary confinement on the systems of convicts, is attributable to a similar source. Of this form of punishment, an entire obliteration or paralysis of the intellectual faculties, in consequence of the suspension of intellectual exercise and excitement, is one of the effects. Here, again, the analogy between the brain and the muscles, as relates to the laws by which they are governed, is complete. Withhold from them action and excitement, for a sufficient length of time, and they become alike paralytic or debilitated, and incapable of action.

One of the supposed modes of ascertaining the size of the human brain being deceptive in itself, leads of necessity to erroneous results. It is computation by the size of the hat which the head requires. If the hat be large, the entire brain of the individual who wears it is alleged to be correspondingly large. This, however, I repeat, is a primary mistake, fruitful in the production of consecutive and secondary ones. And, like most other mistakes, it arises from a want of observation and thought.

There are four classes, or rather orders, of cerebral organs; and "hatters' measure" gives the size of only two of them; and they are comparatively of inferior standing. They are the animal and the knowing or perceptive organs. The two superior orders, the reflecting and the moral, lie above the range of "hatters' measure." Not including them, therefore, it gives no indication of their development and size.

The hat of Lord Byron is said by one of his lordship's biographers to have been very small. In consequence of this, a notion prevails, and is often appealed to by anti-phrenologists, that that wonderful writer had a small brain. Such, indeed, *might* have been the case, and yet no objection have grown out of it to the truth of phrenology. Lord Byron's genius, though of the loftiest order, was *partial*, and did not, therefore, require a large development of every organ. The same is true as respects Demosthenes. His genius also was *partial*. His head, therefore, as represented by the statuaries of his time, was not very large. It was characterised, however, by consummate intensity.

But, in truth, Lord Byron's head was not unusually small. Of the

size of his hat, I have nothing to say; because I never examined it. His Grecian helmet, however, I have examined, and have had it on my head; and it is far from being uncommonly small. Yet the gentleman who now possesses it, and who knows the fact to be true, assured me that his lordship did not wear it with entire ease and comfort, but complained of its tightness and troublesome pressure.

Sir Walter Scott did not require a hat larger than those of many other men, whose entire brains, compared to his, were small. The development of his reflecting organs was large, and that of his moral ones perhaps unequalled.

When viewed, however, on a general scale, even "hatters' measure" testifies to the truth of phrenology. In the extensive and ancient hatteries of London, and I believe also of Paris, where the manufacture, descending from father to son, has been carried on for centuries in the same family and the same building, there exist three different standard sizes for the hats of adults. Of these, the smallest is intended for serving-men, day-labourers, and others who work with their muscles instead of their brains. The next largest size is for mechanics, tradesmen, and other men of business, whose pursuits require somewhat more of cerebral exercise. And the third and largest size is intended for men of education and profession; and for such generally as are engaged in vocations where the brain is enlarged, by being kept under habitual excitement and action.

In the same establishments, hats of a size still smaller are prepared for boys of from seven to twelve or thirteen years of age. Yet have anti-phrenologists asserted, (and some of them even now persist in the error,) that the head of a boy has attained its full size by the end of his seventh year! With equal truth might they assert, that his foot or hand, or any other organ of his body, had thus early attained its growth. On this topic I shall only add, that the hatters' arrangements here referred to, had existed for centuries before the discovery of phrenology, and are not, therefore, the product of its doctrines. Yet are they explicable only on its doctrines; and so far, therefore, do they testify to its truth.

One circumstance remains yet to be spoken of, which is believed to be influential in giving character to the brain as the organ of the mind. It is the comparative amount of the cortical or cineritious portion of that organ.

It has long been surmised, that the secretory or generative action of the brain is carried on by its cineritious matter, while the function of the medullary is to convey the vivyfying and strength-giving product of that action, and diffuse it through the system.

From the anatomical researches of Professors Tiede and Arnold,

Mr. Grainger, and others, this opinion has derived of late no small amount of confirmatory evidence. Little or no doubt, indeed, of its correctness is now entertained. In proportion, therefore, to the quantity of cortical substance possessed by any given brain, other things being equal, (and the quantity is found to be very different in different individuals,) is the activity and vigour of that brain, as the instrument of the mind. A large amount of cerebral cortex, a corresponding amount of cerebral energy—and the reverse.

Such is the doctrine. True and interesting, however, as it may be, I am not informed of any external marks or manifestations indicative of the quantity of cineritious substance which the brains of different persons may possess. As yet, therefore, the discovery is not available in practical phrenology. In farther support of my position, I shall only add, that the electric nerves of the gymnotus, and the torpedo, are, at their origin, superabundantly supplied with cortical substance.

Pursuant to my promise, I shall now offer a few remarks on some of the external and distinguishing signs of the several temperaments of which I have spoken. That this subject is interesting and important in itself and its relations, especially in its bearings on practical phrenology, will be questioned by no one versed in the science, or acquainted with its objects. And it would be gratifying to me, could I, with propriety, make this the last of my prefatory remarks. But I must add, as an apology for the little light I shall shed on temperament, that, as a subject of discussion, it is as difficult as it would be useful, were it fully expounded. And I shall farther add, that temperament, though a constitutional attribute, is not a permanent one. It changes, I mean, in the same individual, in the progress of life. In neither its external marks, its internal peculiarities, nor its practical influences, is it the same in childhood and adult life. Nor is it identical in the same individual in the prime of his life, his years of decline, and his old age. The reason of this is plain. Changes in the relative and interior structure and character of our organs are in perpetual progress, from the cradle to the grave.

*The phlegmatic temperament* is that of comparative dulness, inaction, and debility. Of those who possess it, the personal stature is rarely lofty, or the frame broad, square, or athletic. Yet the person acquires occasionally great weight, from an unwieldy accumulation of flesh, more especially of the adipose portion of it. And the flesh (I mean the muscles) is wanting in tenseness and strength of fibre, elasticity and firmness. It is often so soft as to be easily pitted by pressure, and so unelastic as not immediately to resume its natural condition. In persons possessed of this temperament in the highest

degree, another trait is in most cases striking. The abdominal and pelvic cavities are unusually capacious. Of course, the viscera contained in them corresponds to them in volume. This gives to the figure an unsymmetrical and unsightly appearance, and renders the gait awkward. Hence so many of the Hollanders, among whom this temperament prevails, have backs unusually broad in the lumbar region, wide and clumsy-looking hips, protuberant abdomens, and a waddling movement. And the forms and actions of the Cretans, whose temperament is also phlegmatic, are similar.

The complexion under this temperament is light; but instead of being delicately or brilliantly fair, its whiteness is dull and dead-like, indicating a languid and scanty circulation of blood through the skin, and also a deficiency of red globules in the blood. In this respect, the blood resembles in immaturity that of infancy, in which the red globules are wanting in quantity, and the watery and gelatinous portions superabundant. In further proof of the languor of circulation on the surface of the body, if the faint blush which the skin exhibits at times be removed by pressure, it does not very promptly return.

Whatever may be the colour of the eye—blue, gray, or hazel (for it is never, perhaps, black)—it is neither deep nor strong; and the organ lacks lustre. The hair is light-shaded, soft, and sometimes long and flowing. The expression of the countenance is deficient alike in vivacity and strength; the movements of the body are slow, and seldom graceful.

The chest being narrow, the lungs and heart are necessarily small. So are the blood-vessels. Out of this form of organisation grow several important facts. The blood is comparatively small in quantity, defectively arterialised, and circulated without vigour. In volume and action, therefore, the pulse is below the ordinary standard of adult life. The blood, moreover, as already intimated, superbounds in serum and gelatin, and is deficient in fibrin and red globules. Nothing in the system indicates the presence of high-wrought vital action. The surface of the body is low in temperature, and rarely, if ever, exuberant in its growth of hair. And the skin is unusually soft, as well as smooth. Every mark betokens a deficiency of corporeal vigour; and to such deficiency the mental manifestations fully correspond. The digestive and nutritive apparatus alone is possessed of size and tone sufficient to give them vigorous and efficient action. This temperament is the growth of low, humid, and foggy tracts of country, where the sunshine is rarely brilliant and cheering—the Hollands, Sunderlands, and the Bœtias of the earth.

Of the *sanguineous* temperament, the characteristics are exceedingly different from those of the phlegmatic; many of them, indeed,

are the very opposite. All here is life and action and freshness. The complexion is fair and ruddy, the skin being abundantly supplied with well-prepared blood; the eyes are blue, gray, or light hazel, rarely dark; and the hair yellowish, flaxen, or auburn, and sometimes sandy or red. The temperature of the body is high, and the skin plenteously covered with hair. The eyes are sufficiently lustrous, yet the expression of the countenance is sprightly and cheerful, rather than intense and strong. The sensibility is lively, rather than deep; and the movements generally are spirited and active. The limbs are fleshy and well rounded, the interstices between the muscles being filled and leveled by cellular and adipose substance. The stature is rather tall, and the person of good proportions; and the mien is easy, graceful, and pleasing. The temper, though variable, is rarely, if ever, gloomy, dull, or morose. All things are in their spring-time to it. A fulness of life, especially the life of the blood-vessels, with something of levity and thoughtlessness, rather than of strength, steadiness, and solidity, characterises this temperament. Persons possessing it are seldom in any thing profound and masterly. They are pleasant companions, but are better fitted to accompany or follow and execute, than to lead and command. It is the temperament of youth, early manhood, and high latitudes, rather than the reverse.

The *nervous temperament* is less definitely, broadly, and decidedly marked, and therefore more difficult of description, than either of the two foregoing ones. The complexion, instead of being fair, transparent and ruddy, or white and inanimate, is light, delicate, and pearly, with a sufficient show of fire in it; the hair, eyebrows, and eyes, are more frequently, perhaps, dark than light-coloured; the sensibility is vivid and deep; the look and expression have a keenness inclining to intensity; the attention, though capable of rapid transition, is, while directed to any thing, unwavering and close; and the movements generally are quick and lively, accompanied, at times, by a start and a thrill. The frame is rarely of large dimensions, and the person is usually inclined to be spare.

The temperature of the skin, which is delicate and smooth, and comparatively almost hairless, is a medium between the low temperature of the phlegmatic and the high temperature of the sanguineous temperament. This temperament is marked with an abundance of life, as the constant and general activity of mind and body shows; but it is the life of the nervous system, rather than of the blood-vessels. The manifestations, both mental and corporeal, bespeak a fitness for vivid, rapid, and delicate action, rather than for great depth, or masculine power. They remind us of the swallow, rather than of

the eagle; and of the antelope, rather than of the elephant. The attributes of this temperament united make an aggregate, which, though highly respectable, and in some respects efficient, are inclined to be feminine. When united, however, as it sometimes is, to a large and well proportioned brain, the case is different. Such a combination is necessarily the source of an intellect of great activity and strength.

The *bilious or choleric temperament* presents, both in its elements and as a whole, a character far different from those of the foregoing, and of much greater power. It possesses nothing either fair or ruddy, or soft or delicate. Every feature of it is masculine and stanch; and their combination indicates rigidity, sternness, and strength. The complexion is brownish, or olive, or tawny, according to the influence of climate and exposure; the hair and beard are black, strong, perhaps coarse, and curly, and bushy; the eyes are dark and lustrous, often fiery; and the expression of the whole countenance is resolute and manly. The person, though never full in flesh, is highly muscular; the muscles are well defined, compact, and firm; the stature is rather tall, and the frame close-built, sinewy, and tense: and the movements are seldom hurried, except in answer to strong incentives, but are indicative of the restrained calmness of full preparation for action, resolute volition, and conscious power.

Though the structure of the skin, muscles, and other parts of the body may hardly be called coarse or harsh, much less, perhaps, can it be pronounced refined or delicate. Notwithstanding its fibres are not clearly and distinctly visible to us, we are inclined to consider them thick, tight-drawn, and strong, and so closely woven and firmly compacted, as to form a tissue of the highest degree of tensity and firmness, that may be compatible with entire health and freedom of action. That such a temperament must give to the brain and nerves, as well as to the muscles, superior density, weight, and efficiency, can hardly be doubted.

In a system thus organised, we feel instinctively assured that there is much of life and its highest properties. Those properties, however, in common with their source, would seem to be partly latent, requiring a deep impression to awaken them to action. But that action, when fairly aroused by strong excitement, is inordinately vigorous. It resembles the elastic, but stubborn recoil of well tempered steel, when it escapes from confinement, and rebounds from its flexure. In plainer language, the susceptibility of the system, without being *dull*, is not very acute; yet, by impression sufficiently deep and strong, it may be awakened to intense and strenuous effort. Such a constitution is difficult alike to be roused and tranquillised. It

is characterised by fixity, steadiness and perseverance. It is believed, not perhaps without reason, that this temperament has always entered largely into the constitutions of men who, like Alexander, Cæsar, and Napoleon, have awed, subdued, and governed the world, and left on it their impress deeply engraven. It is to be distinctly understood, however, that to qualify these great leaders for the deeds they achieved, mere temperament, as *here* considered, was not sufficient. Their cerebral size and *developments* were the chief source of their mighty efforts and surpassing renown. Unless the brain be of a high order, as respects development and volume, no temperament can make man illustrious. And such a brain, united to *any* temperament, is a source of power.

Of the *mixed temperament*, I have two reasons for saying but little. It is a combination of the temperaments of which I have already spoken, more especially of the sanguineous, the nervous, and the choleric, or of any two of them. Provided, therefore, I have made myself correctly understood, in relation to them as simple and individual conditions of the human system, there can be no difficulty in detecting mixtures of them, especially where their elements are so abundant, and their shades so strong, as to be fairly perceptible, and to be materially influential in giving character to those by whom they are possessed.

The other cause which forbids me to speak largely of the mixed temperament, is the impossibility of telling, in the abstract, or in anticipation of the event, what amount of the elements of any one or more of the simple temperaments may enter into the mixtures, which may present themselves for inspection. This can be done only by an examination and analysis of the temperament when it occurs. All I shall farther say on this subject is, that, notwithstanding what has been stated respecting the choleric, the best imaginable temperament appears to be the mixed one. To bestow on it, however, superior excellence, the mixture must be such, that its elements will be in harmony, and its balance complete. Of the sanguineous temperament, it must have enough to raise it to the summit of vitality; of the nervous, a sufficiency for quick and deep sensibility; and so much of the choleric, as to impart to the compound the highest degree of tension and firmness that may comport with health, united to scope and freedom of action.

I have said that the same temperament differs in degree, at different periods of life, in the same individual. The phlegmatic temperament is at its height in infancy, is diminished in boyhood, youth, and early manhood, and is lowest in the prime of life. Something analogous to it returns, or rather increases, again in advanced old age. The nervous

and sanguineous are at their zenith in youth and early manhood, and decline from that period to the close of life. And the best form of the mixed temperament is ripest, and most perfect in condition, when man is in his prime—from his twenty-fifth or thirtieth, until his fortieth or fiftieth year. It is then that the sanguineous tendency is the best check on the too rigid and inflexible character of the choleric, that the choleric influence restrains the excessive sensibility of the nervous, and that the union of the three is harmonious and complete, in the formation of a well-toned and well-balanced mixed. I shall only further now observe, that temperament, like every other attribute of living matter, may be altered and improved, by cultivation and training, judiciously adapted to its kind and condition. On this topic, however, it is not my purpose at present to enlarge.

Such are my views respecting the several elements, anatomical and physiological, which, when united in the brain, bestow on it the highest perfection of which it is susceptible, in its important capacity as the organ of the mind. Those elements, already briefly enumerated, are again as follows.

The brain must be, 1, large and correctly balanced in its developments—2, well organised and healthy—3, its temperament a mixed one, possessing, also, the requisite balance—4. it must be suitably and highly exercised and trained in all its organs—5, its possessor must be in the prime of life—and, 6, it must be under a temporary orgasm of the highest excitement that is compatible with soundness.

From observations already made, it is sufficiently obvious, that, to the completion of the highest degree of cerebral perfection, the soundness, vigour, and high functional performance of other leading organs are essential. These are more especially the chyle-making, blood-making, and circulatory organs. Of this the reason is plain. Chyle and blood of the best quality must be prepared in sufficient amount; and the latter, raised to the highest state of arterialisation, must be thrown abundantly into the head. But, as just intimated, it is too certain to be questioned, that with these requisitions no competent compliance can be had, unless the organs concerned in the formation of chyle and blood, and in the circulation of the latter, be sufficiently capacious, sound, and vigorous. To consider this topic for a moment in detail:

The brain, like other portions of organised matter, is nourished, vitalised, and invigorated, by well prepared arterial blood. And that it may possess, in these respects, the highest excellence, the blood must have access to it in a free, copious, and well-sustained stream. The entire fitness for this requirement consists, as heretofore mentioned, in a thick neck of moderate length, with lungs, heart, and

blood-vessels large, sound, and vigorous in action, and respiratory muscles corresponding in strength. Unite with these the requisite amount of wholesome food, and sufficient exercise in a sunny climate, and a pure atmosphere, and the arrangement is complete.

It need hardly be added, that men possessed of such brains, temperaments, and other attributes, as those last described and commented on, are made to direct and govern their race; to alter and improve the condition of the world; and to leave an indelible imprint of themselves on the ages that produced them, more especially on the countries in which they laboured. Such rare productions of genius and education, as philosophers, statesmen, and scholars, were Pericles, Socrates, and Aristotle, among the Greeks; Cicero, Pliny, and Seneca, among the Romans; and Bacon, Shakspeare, and Franklin, among the moderns. And such, through all ages, as military chieftains, were Alexander and Cæsar, Napoleon and Washington, with a few other personages that might be cited, but little inferior in greatness and glory.

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## ARTICLE II.

### REMARKS ON THE HUMAN SKULL.*

MR. EDITOR,—

I have not many remarks to make on this subject, which have not directly or incidentally been made by Gall, Spurzheim, or others. I frequently hear medical gentlemen say, that they have seen skulls in such a condition as satisfied them that phrenology could not be true, or if true, impracticable.

In a cabinet of three hundred skulls, made up of different nations, and possessing every condition as to age, sex, health, and disease, with the advantage of having examined more than as many more, it may fairly be presumed, that I have seen all those *conditions* which have satisfied some gentlemen that phrenology cannot be true; and as they have had on my mind a very contrary influence, it is but reasonable to suppose that a special treatise upon cranial peculiarities

* The above article comes from a gentleman who has made very extensive observations; and the facts stated involve important principles in phrenological science. The drawings sent, (for which Dr. Powell has our thanks,) we can use to better advantage hereafter. We are also under obligations to the same writer for several other interesting communications already received, which will appear in due time in the Journal.—ED.

will be attended with beneficial results. With these few prefatory remarks, I proceed with my subject.

First, The crania of all healthy young persons are thin, and have, comparatively, their several parts of very uniform thickness, showing an equal action of all parts of the brain, under the stimulus or impulse of nutrition.

This general fact shows that young persons are adapted to any system of education, and to any profession which is not incompatible with the absolute and relative development of the mental organs. With this truth before us, we should never bring to operate upon youth any system of education which must necessarily cause excitement in some mental organs, and not in others; nor should the whole brain be greatly excited. By such a course, precocity, premature old age, imbecility, or death, may be the consequence. We should aim at nothing more than to keep the organs acting in that qualitive manner which will best secure happiness and usefulness; and when such modes of action have become habitual, a change cannot be effected without unusual means. "As the twig is bent, so the tree inclines."

Secondly, Savage crania are comparatively thin, except in very old age, and of pretty uniform thickness through life. This fact has not been noticed, so far as I have seen, by any one. In African skulls, however, I anticipate an objection, inasmuch as some have said they are thick. I admit that the skulls of slaves, whether in Africa or America, are comparatively thick; but the statement is not true as regards the free, native born Africans. Much pains, it seems to me, have been taken to undervalue the negro character, when, in fact, it holds a higher place in the scale of moral excellence than that of our savages. I have crania of free and slave Africans, and our southern slaves, and I find that those whose ancestors were always free, are as thin as the best Caucasian crania, while those of slaves, whether foreign or domestic, are most frequently thick and heavy.

Thirdly, The crania of civilised men, especially of the lower classes of society, are not of uniform thickness after the formation of character. I have now occasion for a pertinent question; and the answer will, or ought to, satisfy all those gentlemen who are made sceptical by the crania which they have seen in museums, hospitals, or other places. The question—Why are savage crania of uniform, and civilised, of unequal thickness? To have the answer to this interrogatory, we have only to be informed that the history of one savage is, in kind, the history of his tribe, except as regards strength, which is the result of constitutional inheritance. All savages live in the same manner—all hunt, fight, lounge, muse, revenge, and rely on

the Great Spirit. One is not a planter, another a banker, another a merchant, &c.; they are, in kind, all the same. Hence the reason why all savages of the same clan or tribe have heads similarly formed; and, I may add, they are all formed in reference to their mode of being; and any effort to make a savage any thing else than that which he is, experience has shown thus far to be very difficult.

In civilised society, some portions of the brain are particularly called into action, while others are as much neglected, in consequence of different pursuits and habitudes of life. Consequently, when important changes have taken place in the character, it is easily discovered by the unequal thickness of the skull. I have seen so many illustrations confirmatory of this doctrine, that I never hesitate to speak of the character, as thus indicated by the skull. To establish this principle in the mind of the reader, I shall be pardoned for adding the result of a trial of this kind which was imposed upon me. I might present many such facts.

In Wetumpka, Ala., a gentleman handed me the top part of a skull, and desired my opinion of the character of the individual, so far as it could be determined from such a fragment. I stated that the skull indicated that the possessor must have been regarded by his friends as a young man of fine promise; but that, later in life, he became lost to all sense of social feeling and moral sentiment. As my discrimination, in this case, was regarded as being very remarkable, the gentleman who handed me the skull published the following notice of it in the *Wetumpka Argus*.

"As phrenology and phrenologists are entitled to the benefits of all the facts that belong to them, I will be excused for giving publicity to those contained in the following statement:—

"On the morning that Dr. Powell arrived in town, I invited him to my office, and presented to his inspection the sincipital or upper portion of a man's skull with whom I was acquainted. Upon this half of a skull he ventured an opinion, which in all respects was correct. He gave the man's character as manifested in youth and early manhood—he pointed out some important changes in his character that took place in his latter years—and he gave the complexion of his hair, eyes, and skin; also the kind of person he had; in other words, he gave his temperament.

"Respectfully,

"Horatio N. Morris, M. D."

A very large proportion of the inferior classes of society, and of those who die in hospitals and almshouses, either never had the social, moral, and domestic convolutions of their brains called into

action; or if they were, in consequence of unfortunate associations, they became neglected and inactive; in either case, the two tables of the skulls indicating their localities became separated, while those representing the active portion became more greatly compressed. Hence I conclude,

Fourthly, That when any portion of the brain becomes inactive, it decreases in size, and that the internal table of the skull continues adapted to it, leaving the external in its original condition; thereby producing an inter-tabular space, occupied by diploe, corresponding to the cerebral diminution. To this law must be excepted those portions of the skull to which muscles are attached. The two tables of these portions are always compressed, and very nearly the same in all conditions of the brain, presenting but little, if any, indication of cerebral increase or diminution. On the contrary, when a cerebral convolution is very active, the two tables of the skull are much compressed, and when it enlarges, both tables become adapted to it.*

Fifthly, It is the opinion of some, and Dr. Spurzheim rather gives countenance to it, that a depression of the external table of the skull, as well as the internal, does sometimes ensue upon a decrease of a cerebral convolution. A depression of both tables are frequently to be seen in the crania which are found in most of the caverns of Alabama, which I suppose to be of savages who did not possess fire arms. They fought with clubs and bows, and therefore it may be presumed that the head frequently suffered. Besides a depression of both tables, there is occasionally found a thin plate of imperfect bone, not thicker than an egg-shell, from a half to one and a half inches in extent. formed interior to the skull-proper, and attached only by the margins. Sometimes, again, both tables are entirely removed by absorption. From all the facts I have on this subject, I conclude that a depression of the external table is always the result of diseased action between the *periosteum* and *duramater;* and never the result of mental inactivity of the part.

Sixthly, When persons recover from that form of hydrocephalus which increases the size of the head, the external table continues in the position in which the disease left it; and the internal separates from it, to keep in contact with the decreasing volume within. Here, again, I except those portions which give attachment to muscles.

I know a boy in New Orleans who had hydrocephalus to such an extent, as to render his head larger than that of any healthy man; the disease, however, was arrested by an attack of yellow fever, and he

*I have the most unequivocal evidence that cerebral convolutions do enlarge after mature age, under the influence of appropriate excitement.

recovered; but the head retained its diseased magnitude. From a comparison of facts, it appears that the result of cerebral inactivity, and the absorption of dropsical effusions, are very similar upon the skull, so far as the separation of its tables is concerned; except that the former are not so extensive.

Seventhly, Such cerebral affections as are attended with partial or complete *fatuity*, produce a thickening of the plates or tables of the skull, and, of course, a corresponding increase of weight.

I have the crania of several persons who were thus affected; but the most remarkable is that of a Choctaw Indian. He received a blow on the side of his head, which produced a fracture and slight depression across the whole anterior breadth of the parietal bone. For six weeks he moved about in an almost unconscious state, when he was shot by some secret agent, possibly a friend. The margins of the fracture were slightly absorbed, and exposed very clearly the original thickness of the skull; which was now about double. It is the heaviest cranium I ever saw.

There is this peculiarity (if I am entitled to an inference from six or seven cases) under which persons labour who are possessed of partial fatuity. They are, in their usual deportment, slow, stupid, apparently inexcitable, and altogether unsuspected of any liability to mischief; and yet commit some capital offence upon a very slight provocation.

Eighthly, The application of pressure to the skull in early youth, if long continued, will produce a corresponding deformity of it. Upon this topic, I think I have some new and interesting matter for the phrenological public.

The Monumental Indians, or those who erected mounds, deformed the heads of their male children. I have the crania of these people from Virginia, Alabama, and Mississippi; but the most thorough deformity obtains with the Natchez Indians, who resided about Natchez and Vicksburg. This deformity consists in converting the os frontis, from the nose to the coronal suture, into one plane surface, which gave (if the hair were removed, and it is probable that it was,) the appearance of an enormously tall and expanded forehead. I have three of these heads, and lost five others on a steamboat. They as closely resemble each other, as if they were formed in the same mould. The female crania of these people are as thin and as well formed as those of any savages I have seen; but the male are deformed and thick—the sutures are very strong, and the frontal sinuses are almost entirely obliterated. The face is broad and flattened, as well as the head, so that the *mala* bones have a broad surface entirely facing the front. The occipito-frontal diameter of

the head is reduced to five inches, while the temporal diameter, at the base, is five and a half inches, and through Cautiousness, six and a half. The compressing force was applied upon the forehead and occiput, but of what it consisted, or how applied, or how long continued, I know nothing.

I conclude, from the uniform thickness and the unnatural figure of these crania, that the compression did not, in a specific manner, prevent the development of the compressed organs; nor increase the uncompressed; but caused, to some extent, a general inactivity of the whole brain; which, perhaps, as much as any thing else, contributed to produce the extinction of this people. The Chinooks, at the mouth of the Columbia river, who had, probably, a common origin with the Monumentals, practise this deformity upon their children at this time; but I have no certain information as to the length of time which is requisite among them for the production of this celebrated injury and deformity.

Many persons have speculated about the possible and probable influence of early pressure upon the development of the cerebral convolutions; and even Dr. Spurzheim, who ought, *a priori*, to have formed a clear conception of it, seemed to have possessed some curiosity of the kind. My convictions are, that no good can result from it, unless it be deemed as good, to render inactive such organisations as have an injurious tendency.

In conclusion, I think that every candid and impartial reader must regard the above facts as highly confirmatory of the truth of phrenology, and they can be accounted for only on phrenological principles.

W. Byrd Powell.

Gainesville, Ala., June, 1839.

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## ARTICLE III.

### PATHOLOGICAL FACT CONFIRMATORY OF PHRENOLOGY.

Utica, N. Y., July 3d, 1839.

Mr. Editor.

Sir,—I send you the following pathological fact in proof of the truth of phrenology. The case was witnessed by several respectable physicians. The post-mortem examination was conducted by Dr. Stewart, of Clinton, and Dr. Munger, of Waterville. I have the utmost confidence in the correctness of Dr. Munger's report. His statements were corroborated by all that were present.

Respectfully yours,

J. M. Crowley.

Mr. Lewis Davis, a resident of the town of Marshall, Oneida Co., N. Y., a man of a naturally sound constitution and good mind, aged about forty-one, by occupation a farmer, while in regular attendance upon a protracted meeting, in the month of February, 1836, became religiously insane, in which condition he remained a number of days, until his mind was diverted from the subject on which it was engaged, by the occurrence of sickness in his family. Previous to this time, he was a professor of religion, and was considered an exemplary Christian, and, as a friend and neighbour, was much respected. About the time, or before the occurrence of this meeting, he imbibed the religious notions of a sect who call themselves Perfectionists, and became insane, as was supposed, from the excitement of mind under which he laboured.

While insane, he paid little or no attention to business, but lay upon his face for a number of days, and fasted. From this period until about two weeks previous to his death, which took place on the 10th of November, 1837, he enjoyed tolerable good health, and attended to his ordinary business; but his conduct was in many respects unnatural, different from what it was before the derangement. He was considered naturally a penurious man; but now, he would not refuse to a neighbour, or any one whom he thought worthy, almost any favour, and would commonly, before granting it, and before making up his mind as to any course of conduct, "ask the Lord what he should do," so that he might not, as he said, commit sin, or do any thing wrong. For instance, a neighbour came to him to borrow a rake; he had two, one old and imperfect, and the other new; the latter he did not like to lend, and (to use his own language) "the devil told him to lend the other," and "the Lord told him to lend the good one;" and he did so. Another circumstance. A poor man went to him for some pork; he had none to spare, not even so much as he wanted for his own use, but, he said, the Lord told him to let the man have it, and accordingly he did. During the fall and winter of 1826–7, he distributed his corn among the poor, telling them, that if they could pay for it, they might do so, if not, well, for the corn was the Lord's.

These circumstances are remarkable only, as being so foreign from his natural disposition.

On the evening of October 26th, 1837, he arranged his papers, and put them into his wife's hands, telling her, at the same time, that he was going to heaven, and had no further use for them. He then went to the house of one of his neighbours, and commenced kicking him, for the purpose, as he said, "of driving the devil out of him;" after he had driven him out, as he imagined, he went home, and told

his wife "that he had kicked the prince of devils out of the man." He now became raving and violent, calling himself God Almighty, and believed he was possessed of infinite power. His physician was sent for, and he was bled freely, and became rational, in which state he remained for a number of hours, when he again became delirious and the bleeding was repeated, but not with the same good effect as before, although his violence was somewhat subdued by it. From this time until his death, which occurred about two weeks subsequently, his rational intervals were slight. Most of the time, it took a number of men to keep him in subjection, and he would frequently manifest a great deal of violence towards them, but would regret it very much when he became a little more calm. He was most of the time impressed with the idea that he was equal to God, and called himself God Almighty. For about a day and a half previous to his death, his left side was affected with paralysis.

He was not put on a regular course of medical treatment during his sickness, because his physician supposed that he was not bodily diseased; but that it was purely a religious insanity, produced by mental excitement, and unattended with any organic disease. With these views of the nature of the case, they recommended that he should be sent to the insane hospital, and accordingly preparations were made for taking him there, and the 8th of November (two days previous to his death) was the day fixed upon for starting with him, but he failed so fast, they gave it up.

On the 11th, the day subsequent to his death, a post-mortem examination took place. The brain was examined. The first manifestation of disease which appeared, was the discharge of an unusual quantity of serous fluid during the sawing of the cranium. Upon removing the upper portion of the cranium, the blood-vessels of the *dura-mater* were found very much injected, as were also those of the *pia-mater*. The substance of the whole of the left hemisphere of the brain was in a healthy state; except, that it bore evidence of the congested state under which it had suffered; but upon the right side, under the superior posterior part of the parietal bone, about an inch from the sagital suture, was found a portion of brain, bearing strong marks of local inflammation externally, and upon making an incision into it, a coagulum of blood, about the size of half a butternut, was found deposited there. In addition to this, we found a small quantity of a greenish yellow pus. *The brain immediately surrounding the coagulum was very much softened down and decomposed.*

The cavity left after removing the coagulum, and the disorganised brain, was nearly, or quite, large enough to contain a small hen's egg. The whole of the brain was very minutely examined, but no appear-

ances of disease were discovered in any other portion of it, except the general state of congestion before mentioned. The examination was prosecuted no farther; because no evidence of disease had been manifested in any other organ during his sickness, and we had found disease enough to satisfy all present as to the cause of death.

I was present at this examination, and assisted in the operation, and am therefore ready to substantiate the truth of the statements here made concerning the condition of the brain. The history of the case I obtained from the attending physician, and from one of the neighbours. Upon first discovering the diseased point in the brain, I was struck by observing that it was situated exactly in that part of the head where phrenologists locate the organ of Conscientiousness,* and remarked this fact to the other physicians present.

I consider this an interesting case, as connected with phrenology; and although I do not believe that it can be established as a science by one or two such cases, yet by many it would become settled upon a fixed and incontrovertible basis.

E. A. Munger, M. D.

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## ARTICLE IV.

### PHRENOLOGICAL DEVELOPMENTS OF FIESCHI; WHO ATTEMPTED TO MURDER THE KING OF FRANCE.

(Communicated for the Journal by Dr. W. B. Powell.)

Shortly after this individual attempted to murder the King of France, the public journals every where contained extracts from a report, professing to have been made by some French gentleman, whose name I do not recollect, going to show that phrenology was not sustained by the head of this would be regicide. Dr. Kennedy, of New Orleans, has a *fac simile* of his head, made of wax, and taken immediately after decapitation. In 1836, he favoured me with the privilege of measuring it.

The general development of this head is obliquely upwards and backwards—Constructiveness, Self-esteem, Firmness, and the perceptive powers, are large; while the reflective faculties, social feel-

* It is evident, from the general description of the diseased portion of the brain, as well as from the size of the cavity after its removal, that other organs surrounding that of Conscientiousness were also affected by the inflammation. The organ of Veneration was doubtless more or less diseased: and it is probable, that, that whole region of the brain was at times preternaturally excited.—Ed.

ings, and moral sentiments, are all defective. I regard his Destructiveness as respectably large—large enough, when viewed in reference to the balance of his head, to qualify him, under the influence of strong motives, for any bloody outrage upon society. The gentleman who reported him, on phrenological principles, as being incompetent to the crime for which he was executed, could not, in my opinion, have been more than the merest novice in the science of phrenology.

In the following list of measurements, the first column contains those of Fieschi, and the other seven are of murderers, which I have added as illustrations of the murderous capacity of Fieschi. All these measurements include the integuments.

*A Table of Measurements of Murderers' Heads, taken in inches.*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1. From Self-esteem to Individuality, | 7⅞ | 7½ | 7⅜ | 7⅜ | 7½ | 7½ | 7½ | 7½ |
| 2. " Destructiveness to Destructiveness, | 5⅞ | 5⅝ | 6 | 5½ | 5⅜ | 5⅝ | 5⅝ | 5⅝ |
| 3. " Secretiveness to Secretiveness, | 5½ | 5⅝ | 6 | 5½ | 5⅜ | 5⅝ | 5⅝ | 5⅝ |
| 4. " Constructiveness to Constructiveness, | 5 | 4⅝ | 4⅝ | 4½ | 4⅝ | 4⅝ | 5 | 4⅝ |
| 5. " Ideality to Ideality, | 4⅝ | 4⅝ | 4⅝ | 4½ | 4⅝ | 4⅝ | 4⅝ | 4⅝ |
| 6. " Cautiousness to Cautiousness, | 5⅜ | 5⅜ | 5⅜ | 5⅜ | 5⅜ | 5⅜ | 5⅜ | 5⅜ |
| 7. " Ear to Firmness, | 5⅝ | 5⅝ | 5⅝ | 5⅜ | 5⅝ | 5⅝ | 5⅝ | 5⅝ |
| 8. " Ear to Reverence, | 6 | 5⅝ | 5⅝ | 5⅜ | 5⅝ | 5⅝ | 5⅝ | 5⅝ |
| 9. " Ear to Benevolence, | 5⅝ | 5⅝ | 5⅝ | 5⅜ | 5⅝ | 5⅝ | 5⅝ | 5⅝ |
| 10. " Ear to Comparison, | 5⅝ | 5⅝ | 5⅝ | 5⅜ | 5⅝ | 5⅝ | 5⅝ | 5⅝ |
| 11. " Ear to Individuality, | 5 | 5 | 5 | 4⅛ | 5 | 5 | 5 | 5 |
| 12. " Ear to Self-esteem, | 4⅝ | 4⅝ | 4⅝ | 4⅛ | 4⅝ | 4⅝ | 4⅝ | 4⅝ |
| | 5⅝ | 5⅝ | 5⅝ | 5⅜ | 5⅝ | 5⅝ | 5⅝ | 5⅝ |

[M. Amussat, a distinguished French phrenologist, made the following statement respecting Fieschi's character, at the discussion on phrenology before the Royal Academy of Medicine in Paris.—Ed.]

"It has been asserted that the head of Fieschi cannot be distinguished from that of a moral man. Now, in truth, it is (showing the mould) the head of a miserable wretch. It is of small dimensions. The organs of Pride and Firmness—the most prominent and 'mortivant' features in Fieschi's character—however, are of considerable size. The lateral depressions in a murderer's head may at first sight surprise us; but be it remembered, that Gall has never said that a person may not be an assassin 'sans l'organe du meutre.' The conformation of the head of Fieschi accounts for, if not his last and most atrocious crime, the profligate dispositions of his general character. His destructive propensities were by no means so conspicuous as his inordinate and unprincipled love of notoriety. It did not appear that he had been urged on to his villanous acts by revenge or bloodthirstiness. He had no cause of resentment against the king or any of his attendants; but leading for a length of time an idle, unoccupied, and unprincipled life, his heart had been open to some vague, and almost undefinable Satanic whisperings of personal distinction."

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At the close of Mr. Combe's last course of lectures in New York, a committee, consisting of Rev. Mr. Sawyer, Mr. A. Boardman, Rev. Mr. Sunderland, and Mr. E. D. Hurlbut, was appointed to prepare a report in relation to the same. Among other resolutions reported, and unanimously adopted by the class, were the following:—

"*Resolved*, That we regard phrenology as having its foundation in the truths of nature, and as entitled, in point of dignity and interest, to rank high among the natural sciences.

"*Resolved*, That we regard the practical application of phrenological principles to physical training, to moral and mental education, to the treatment of the insane, and to criminal legislation, as of the highest importance and utility; and we indulge the hope of witnessing, in our own day, the beneficial results of such application in the increased happiness of our homes, in the improved condition of our seminaries of learning, in more enlightened legislation, and in the more benign influences of our civil and religious institutions."

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The present number of the Journal is principally occupied with Dr. Caldwell's "Thoughts on the Efficiency of the Brain," &c. It is our design, that each number shall contain, generally, a variety of articles, which, as to style, matter, and character, will be adapted to every class of readers. Still, there may be times, when the interests of the science will be most promoted by presenting articles of considerable length. It was desirable, on many accounts, that the communication, referred to above, should appear unbroken and entire; and we believe it richly merits such a presentation. For we doubt whether matter can be found of equal value, on the topics discussed, in any productions which have been published on the science, either in Europe or America; and we know that every person who has any just appreciation of phrenology and wishes to become thoroughly versed in its principles, cannot fail to read Dr. Caldwell's article with great interest and profit.